



## Section 2.5

# PALEONTOLOGICAL RESOURCES



## **2.5 Paleontological Resources**

The EOMSP EIR did not address paleontological resources. However, the presence of Otay Formation and the potential for fossils associated with this formation warrants the following discussion.

### **2.5.1 Existing Conditions**

San Diego County is underlain by a number of distinct geologic rock units. Depending on the nature of the rock units, fossil remains, referred to as paleontological resources, may occur. Fossil remains commonly include marine shells, bones and teeth of fish and mammals, leaf assemblages, and petrified wood.

Based on the geologic formations in San Diego County, levels of paleontological resource potential and sensitivity have been developed. High resource potential and high sensitivity are assigned to geologic formations known to contain paleontological deposits with rare, well preserved, critical fossil materials. Moderate resource potential and moderate sensitivity are assigned to geologic formations known to contain paleontological deposits. These geologic formations are judged to have a strong, but often unproven, potential for producing unique fossils. Low resource potential and low sensitivity are assigned to geologic formations that, based on their relatively young age, are judged unlikely to produce unique fossil remains. Marginal resource potential and marginal sensitivity are assigned to geologic formations that are composed either of volcanoclastic (derived from volcanic sources) or metasedimentary rocks and have a limited probability for producing fossils from certain formations at localized outcrops.

Otay Mesa is within the Coastal Plain Geomorphic Region of San Diego County. The Coastal Plain Geomorphic Region is characterized by interbedded marine and non-marine sedimentary rock units deposited over the last 140 million years. The sedimentary rocks overlie a buried topography of plutonic crystalline rocks composed of granite, granodiorite, etc. Many of the level surfaces in the coastal areas, including most of the mesa tops and coastal benches, are elevated marine terraces.

Based on the results of a site-specific geotechnical investigation by Krazan (2006), surficial materials and geologic formations observed or expected to occur within the proposed project site include undocumented fill, alluvium soils, and Otay Formation.

### **2.5.2 Analysis of Project Effects and Determination as to Significance**

#### ***Guidelines for the Determination of Significance***

The following guideline used to determine significance is based on the County of San Diego Guidelines for Determining Significance - Paleontological Resources (March 19, 2007).

The proposed project would have a potentially significant environmental impact to paleontological resources if it would:

1. Directly or indirectly damage a unique paleontological resource or site, or include grading or excavation that will disturb the substratum or parent material below the major soil horizons in any paleontologically sensitive area of the County, as shown on the San Diego County Paleontological Resources Potential and Sensitivity Map.

### *Analysis*

#### Paleontological Resources (Guideline 1)

The proposed project and off-site improvements are located within an area designated as having a high paleontological sensitivity rating per the San Diego County Paleontological Resources Potential and Sensitivity Map. Specific information regarding the geologic formations onsite supports this rating is discussed below.

Much of the project site is underlain by the Otay Formation, which exhibits a high paleontological resource sensitivity rating. Other materials observed or expected to occur on-site have low resource sensitivity, and are unlikely to produce any fossil remains. Sedimentary rocks from the Otay Formation have contained the significant skeletal remains of terrestrial reptiles (tortoise and lizards), birds (cranes, quail and others), and mammals (e.g., insectivores, gophers, mice, beavers, dogs, rhinoceros, camels, chevrotains and others), along with sparse fossil impressions of freshwater plants (e.g., rushes). Based on recent discoveries, the Otay Formation is considered to be the richest source of late Oligocene terrestrial vertebrates in California.

Grading for the proposed project would encompass approximately 157,000 cubic yards of cut and fill. The cuts would likely impact strata below the soil horizons, and impact the sensitive Otay Formation. Offsite improvements that involve cut would also likely impact Otay Formation. **Based on these conditions, the project would have a significant, direct impact on paleontological resources (Impact PI-1).**

#### **2.5.3 Cumulative Impact Analysis**

The sensitive geologic unit that occurs under the project site (Otay Formation) is also present in many other areas of the San Diego region. More specifically, this formation is exposed from approximately the latitude of SR-94, south to the International Border, and from I-805, east to the base of the San Ysidro Mountains and San Miguel Mountain. Development of the San Diego region has resulted in disturbance to the Otay Formation geologic unit and the fossils that it contains. Therefore, many of the cumulative projects listed in Table 1-1 would also have significant impacts to paleontological resources. However, monitoring for paleontological resources is now typically required on a site-specific basis for projects that require significant earthwork in geologic units with higher paleontological sensitivities. **As the proposed project as well as other projects would salvage significant paleontological material, a less than significant, cumulative paleontological impact would occur from implementation of the proposed project.**

#### 2.5.4 Significance of Impacts Prior to Mitigation

Based on the analysis provided above, the proposed project would have the following significant impact prior to mitigation.

**Impact PI-1:** The proposed project would have a significant impact on paleontological resources should grading encounter a geologic formation with a moderate to high paleontological sensitivity.

#### 2.5.5 Mitigation

Implementation of the following mitigation measure would reduce project impacts to paleontological resources to less than significant.

**M-PI-1:** Prior to obtaining a grading permit, the Project Applicant shall implement a Monitoring and Resource Recovery Program (MRRP) to mitigate potential impacts to buried paleontological resources encountered on the project site during grading. In addition, the text of this mitigation measure shall be contained in the notes of the Grading Plan.

The MRRP shall be approved by the Director of DPLU and shall include the following:

1. The Project Applicant shall provide evidence to the satisfaction of the Director of DPLU that a County-approved paleontologist has been contracted to implement a grading MRRP before commencing grading.
2. The County-approved paleontologist shall attend a pre-grading meeting with the contractors to explain and coordinate the requirements of the monitoring program.
3. The Project Paleontologist shall monitor all areas identified for development, including off-site improvements.
4. An adequate number of monitors shall be present to ensure that all earthmoving activities are observed and shall be on site during all grading activities for areas to be monitored.
5. During the original cutting of previously undisturbed deposits, the paleontological monitor(s) shall be on site full time to perform full-time monitoring. Inspections will vary based on the rate of excavation, the materials excavated and the presence and abundance of fossils. The frequency and location of inspections will be determined by the Project Paleontologist.
6. Isolated fossils shall be minimally documented in the field, and the monitored grading can proceed.
7. In the event that significant paleontological resources are discovered, the paleontological monitor(s) shall have the authority to divert or temporarily halt ground disturbance operations in the area of discovery to allow evaluation of the resources. The Project Paleontologist shall contact the County at the time of discovery and, in consultation with the County, determine the significance of the discovered resources. The County must concur with the evaluation before construction activities will be allowed to resume in the affected area. For significant resources, a Research Design and Resource Recovery

- Program to mitigate impacts shall be prepared by the Project Paleontologist and approved by the County, then carried out using professional paleontological methods.
8. Before construction activities are allowed to resume in the affected area, the resources shall be recovered recorded using professional paleontological methods. The Project Paleontologist shall determine the amount of material to be recovered.
  9. In the event that paleontological resources are discovered, all material collected during the grading monitoring program shall be processed and curated. The collections and associated records shall be transferred, including title, to an appropriate curation facility within San Diego County, to be accompanied by payment of the fees necessary for permanent curation. Evidence shall be in the form of a letter from the curation facility identifying that paleontological materials have been received and that all fees have been paid.
  10. Monthly status reports shall be submitted to the Director of DPLU starting from the date of the notice to proceed to termination of implementation of the grading monitoring program. The reports shall briefly summarize all activities during the period and the status of progress on overall plan implementation. Upon completion of the implementation phase, a final report shall be submitted describing the plan compliance procedures and site conditions before and after construction.
  11. In the event that paleontological resources are discovered, a report documenting the field and analysis results and interpreting the recovered resources within the research context shall be completed and submitted to the satisfaction of the Director of DPLU prior to the issuance of any building permits.
  12. Prior to occupancy or use of the premises, the Project Applicant shall complete and submit to the satisfaction of the DPLU, a final report that documents the results, analysis, and conclusions of all phases of the MRRP. It shall also include evidence that all resources collected during the grading monitoring program have been curated.
  13. In the event that no paleontological resources are discovered in the course of monitoring, a brief letter to that effect shall be sent to the DPLU by the Project Paleontologist confirming that the grading monitoring activities have been completed.

## **2.5.6 Conclusion**

Implementation of the proposed project, including proposed off-site improvements, would potentially result in significant impacts to paleontological resources during excavation into geologic formations that may contain unique paleontological resources (Impact PI-1). In order to ensure that impacts to significant, paleontological resources during excavation would be less than significant, the above described monitoring program (M-PI-1) would be implemented in accordance with standard paleontological practices. Therefore, this impact to paleontological resources would be reduced to less than significant.